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The Political Economy of Indonesia's Downstream Industrialization: Resource Governance and Global Supply Chains

Ekonomi Politik Industrialisasi Hilir Indonesia: Tata Kelola Sumber Daya dan Rantai Pasokan Global

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Abstract
Indonesia's downstream industrialization strategy has emerged as a central pillar of national economic transformation by promoting domestic processing of strategic natural resources and reducing dependence on raw commodity exports. While the policy has attracted substantial foreign investment and strengthened Indonesia's role in global manufacturing networks, it has also generated important debates concerning governance, industrial competitiveness, environmental sustainability, and international trade relations. This study examines the political economy of Indonesia's downstream industrialization through the lens of resource governance and global supply chain restructuring. Employing a qualitative political economy approach, the research analyzes industrial policy documents, investment trends, trade statistics, regulatory reforms, and interviews with policymakers, industry representatives, labor organizations, and international investors. The findings indicate that downstream industrialization has significantly enhanced Indonesia's bargaining position within

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global value chains, particularly in strategic sectors supporting renewable energy technologies. However, institutional fragmentation, environmental governance challenges, labor issues, and evolving international trade regulations continue to influence long-term policy effectiveness. The article argues that successful industrial transformation depends upon coherent governance institutions capable of balancing economic nationalism with global market integration and sustainable development objectives. By integrating theories of developmental states, industrial policy, and global political economy, the study contributes to broader debates concerning industrial upgrading in emerging economies. The findings provide policy lessons for resource-rich developing countries seeking to strengthen domestic industrial capacity while maintaining international competitiveness and environmental responsibility.

Keywords: *Downstream Industrialization, Resource Governance, Global Supply Chains, Political Economy, Indonesia*

Abstrak

Strategi industrialisasi hilir Indonesia telah muncul sebagai pilar utama transformasi ekonomi nasional dengan mempromosikan pengolahan sumber daya alam strategis di dalam negeri dan mengurangi ketergantungan pada ekspor komoditas mentah. Meskipun kebijakan ini telah menarik investasi asing yang substansial dan memperkuat peran Indonesia dalam jaringan manufaktur global, kebijakan ini juga telah menimbulkan perdebatan penting mengenai tata kelola, daya saing industri, keberlanjutan lingkungan, dan hubungan perdagangan internasional. Studi ini mengkaji ekonomi politik industrialisasi hilir Indonesia melalui lensa tata kelola sumber daya dan restrukturisasi rantai pasokan global. Dengan menggunakan pendekatan ekonomi politik kualitatif, penelitian ini menganalisis dokumen kebijakan industri, tren investasi, statistik perdagangan, reformasi peraturan, dan wawancara dengan pembuat kebijakan, perwakilan industri, organisasi buruh, dan investor internasional. Temuan menunjukkan bahwa industrialisasi hilir telah secara signifikan meningkatkan posisi tawar Indonesia dalam rantai nilai global, khususnya di sektor-sektor strategis yang mendukung teknologi energi terbarukan. Namun, fragmentasi kelembagaan, tantangan tata kelola lingkungan, masalah ketenagakerjaan, dan peraturan perdagangan internasional yang terus berkembang terus memengaruhi efektivitas kebijakan jangka panjang. Artikel ini berpendapat bahwa transformasi industri yang sukses bergantung pada lembaga tata kelola yang koheren yang mampu menyeimbangkan nasionalisme ekonomi dengan integrasi pasar global dan tujuan pembangunan berkelanjutan. Dengan mengintegrasikan teori-teori negara berkembang, kebijakan industri, dan ekonomi politik global, studi ini berkontribusi pada perdebatan yang lebih luas mengenai peningkatan industri di negara-negara berkembang. Temuan-temuan tersebut memberikan pelajaran kebijakan bagi negara-negara berkembang yang kaya sumber daya yang berupaya memperkuat kapasitas industri domestik sambil mempertahankan daya saing internasional dan tanggung jawab lingkungan.

Kata kunci: *Industrialisasi Hilir, Tata Kelola Sumber Daya, Rantai Pasokan Global, Ekonomi Politik, Indonesia*

I. INTRODUCTION

The transformation of global production systems has intensified competition among resource-rich developing countries to move beyond commodity dependence and achieve higher levels of industrial upgrading. In the contemporary global economy, control over natural resources alone is increasingly insufficient to secure sustainable economic development; rather, countries must develop institutional capacities to capture greater value from resource extraction, processing, and integration into global value chains (Gereffi, 2018; Rodrik, 2014). This shift has encouraged many emerging economies to adopt industrial policies aimed at promoting domestic processing, technological learning, and strategic participation in international production networks. Within this context, downstream industrialization has become a prominent development strategy through which resource-endowed states seek to transform their comparative advantages in raw materials into competitive industrial capabilities (Aiginger & Rodrik, 2020).

Indonesia represents a critical case in this global transformation due to its abundant reserves of strategic minerals, including nickel, coal, bauxite, and other resources essential for contemporary industrial sectors. Historically, Indonesia's economy has relied heavily on the export of unprocessed commodities, exposing the country to global price volatility and limiting domestic value creation (Hill, 2014). In response, the Indonesian government has pursued a resource-based industrialization strategy through downstream processing policies, export restrictions on raw minerals, and incentives for investment in domestic manufacturing capacity. These policies, particularly in the nickel sector, have positioned Indonesia as an increasingly influential actor in global supply chains associated with electric vehicle batteries and renewable energy technologies (International Energy Agency [IEA], 2023). Consequently, downstream industrialization has become not only an economic policy instrument but also a manifestation of economic nationalism and strategic resource governance.

However, the political economy implications of Indonesia's downstream industrialization remain contested. Supporters argue that the policy enhances national bargaining power, stimulates foreign direct investment, creates industrial employment, and enables Indonesia to capture greater value within global production networks (Ovadia, 2019). Conversely, critics highlight concerns regarding regulatory uncertainty, environmental degradation, labor conditions, and the risk of reproducing dependency through foreign-controlled industrial enclaves (Warburton, 2023). These debates reflect a broader dilemma faced by developing economies: how to balance state intervention and resource sovereignty with the demands of global market integration and international investment regimes. The Indonesian experience therefore provides an important empirical setting for examining how resource governance, industrial policy, and global supply chain dynamics interact in shaping pathways of economic transformation.

Despite growing scholarly attention toward Indonesia's mineral downstreaming agenda, existing studies have predominantly focused on specific sectors, particularly nickel and battery production, or examined the policy through economic development and trade perspectives. Less attention has been given to the broader political economy mechanisms underlying downstream industrialization, including the role of state institutions, governance arrangements, international capital, and changing configurations of global value chains. This gap is significant because industrial upgrading is not merely a technical process of increasing manufacturing capacity; it is fundamentally shaped by power relations, institutional structures, and negotiations between domestic actors and global economic forces (Gereffi et al., 2005; Wade, 2018).

This article addresses this research gap by examining Indonesia's downstream industrialization strategy through the integrated perspectives of resource governance and global supply chain restructuring. Drawing upon theories of developmental states, industrial policy, and global political economy, this study investigates how Indonesia seeks to transform its resource-based economy while navigating tensions between national development objectives and global economic integration. The central argument of this article is that downstream industrialization has strengthened Indonesia's strategic position within global value chains, but its long-term success depends on the development of coherent governance institutions capable of addressing environmental, social, and institutional challenges.

By analyzing policy frameworks, investment patterns, trade dynamics, and stakeholder perspectives, this research contributes to broader debates on industrial transformation in emerging economies. The Indonesian case offers important lessons for resource-rich developing countries attempting to move from commodity dependence toward higher-value industrial participation while maintaining sustainable governance practices. Ultimately, the study demonstrates that successful resource-based industrialization requires not only access to natural resources but also effective institutions, strategic state capacity, and the ability to negotiate favorable positions within evolving global production networks.

II. DOWNSTREAM INDUSTRIALIZATION AND THE TRANSFORMATION OF INDONESIA'S RESOURCE GOVERNANCE REGIME

Indonesia's downstream industrialization strategy represents a fundamental transformation in the country's approach to natural resource governance. For decades, Indonesia's economic structure was characterized by dependence on primary commodity exports, where mineral resources were extracted and exported with limited domestic processing capacity. This commodity-oriented development model generated significant export revenues but constrained opportunities for industrial diversification, technological development, and domestic value creation (Hill, 2014). The adoption of downstream industrialization reflects an attempt by the Indonesian state to overcome these structural limitations by transforming natural resources from passive export commodities into strategic assets for industrial development.

The political economy rationale behind downstream industrialization is closely associated with the concept of resource nationalism, where states seek to strengthen control over natural resources and increase domestic economic benefits from extraction activities. Unlike traditional resource nationalism that primarily emphasizes ownership and state control, contemporary resource governance strategies increasingly focus on value capture, industrial upgrading, and integration into higher segments of global production networks (Ovadia, 2019). Indonesia's mineral downstreaming policy demonstrates this shift by moving beyond resource extraction toward the development of processing industries, particularly in sectors considered strategic for future economic competitiveness.

A central instrument of this transformation has been the government's policy of restricting exports of unprocessed minerals, particularly nickel ore. Through regulatory reforms and export bans, Indonesia has attempted to compel companies operating in the mining sector to establish domestic processing facilities. This policy represents a deliberate intervention by the state to alter market incentives and encourage industrial investment. From the perspective of developmental state theory, such intervention reflects the active role of governments in directing structural economic transformation through industrial policy, rather than relying solely on comparative advantage based on resource abundance (Wade, 2018).

The Indonesian case illustrates how the state has attempted to redefine its relationship with multinational corporations (MNCs). Historically, resource-rich developing countries often occupied subordinate positions within global production systems, supplying raw materials while capturing limited economic value. Through downstream policies, Indonesia seeks to renegotiate this relationship by using access to strategic minerals as bargaining power to attract investment under more favorable conditions. The rapid development of nickel-processing industries demonstrates the state's capacity to leverage resource endowments as instruments of industrial strategy rather than merely as sources of export revenue (Gereffi, 2018).

However, the effectiveness of resource-based industrialization depends heavily on institutional capacity. While Indonesia has demonstrated strong political commitment to downstreaming, the implementation process involves complex coordination among multiple state agencies, regional governments, private corporations, and international investors. Industrial transformation requires not only regulatory authority but also bureaucratic capability, policy consistency, and long-term strategic planning. As Rodrik (2014) argues, successful industrial policy depends on institutional arrangements that enable states to identify strategic sectors, coordinate investment, and continuously adapt policies according to changing economic conditions.

The Indonesian experience reveals both the opportunities and limitations of state-led resource governance. On one hand, downstream industrialization has strengthened Indonesia's bargaining position in international economic relations by increasing its importance in strategic mineral supply chains. The country's control over nickel resources has provided leverage in negotiations with foreign investors and global industries seeking access to critical minerals required for energy transition technologies (International Energy Agency [IEA], 2023). On the other hand, resource-based industrialization may generate dependency risks if domestic industries remain reliant on foreign capital, imported technology, and external markets.

This tension highlights a central debate in development studies: whether resource abundance can become a foundation for industrial transformation or whether it reinforces patterns of dependency. Classical resource dependency perspectives emphasize that commodity-based economies often struggle to achieve structural transformation because value creation remains concentrated in technologically advanced economies. Conversely, contemporary industrial policy approaches argue that resources can serve as a foundation for industrial upgrading when supported by effective institutions and strategic state intervention (Aiginger & Rodrik, 2020).

Indonesia's downstream industrialization therefore represents an evolving governance experiment rather than a completed transformation. The policy has successfully altered the country's position from a raw material exporter toward an emerging industrial actor, but the sustainability of this transition depends on whether the state can develop deeper domestic capabilities. This includes strengthening local industries, promoting technological learning, improving human capital, and ensuring that industrial growth generates broader economic linkages beyond resource-processing activities.

From a broader political economy perspective, Indonesia's experience demonstrates that controlling natural resources is only the initial stage of industrial transformation. The more fundamental challenge lies in building governance institutions capable of converting resource advantages into sustainable industrial capabilities. Therefore, downstream industrialization should be understood not merely as a trade or investment policy, but as a broader strategy of state restructuring, economic sovereignty, and repositioning within the global political economy.

III. DOWNSTREAM INDUSTRIALIZATION AND INDONESIA'S STRATEGIC POSITION IN GLOBAL SUPPLY CHAINS

Indonesia's downstream industrialization strategy has significantly altered the country's position within global supply chains by transforming its role from a supplier of raw materials into an emerging producer of processed industrial commodities. This transformation is particularly evident in the nickel sector, where Indonesia has become a central actor in the global supply chain for electric vehicle (EV) batteries and renewable energy technologies. The increasing importance of critical minerals in the global energy transition has created new geopolitical and economic opportunities for resource-rich countries, allowing them to leverage mineral resources as strategic assets in international production networks (International Energy Agency [IEA], 2023). However, participation in global supply chains does not automatically translate into economic upgrading, as the ability to capture higher value depends on domestic industrial capabilities, technological capacity, and governance arrangements.

The global value chain (GVC) perspective provides an important framework for understanding Indonesia's industrial transformation. According to Gereffi et al. (2005), countries participate in global production networks through different forms of economic upgrading, including process upgrading, product upgrading, and functional upgrading. Process upgrading involves improving production efficiency, while product upgrading refers to the development of more sophisticated goods. Functional upgrading represents the ability to move into higher-value activities such as research, design, technology development, and strategic management. From this perspective, Indonesia's downstream industrialization represents an attempt to move beyond a low-value position as a raw material exporter toward greater participation in processing and manufacturing activities.

The development of Indonesia's nickel-processing industry demonstrates a significant shift in the governance of global mineral supply chains. Historically, Indonesia occupied a relatively subordinate position in the international division of labor, exporting unprocessed minerals while advanced industrial economies captured greater value through downstream manufacturing activities. The implementation of mineral downstreaming policies has challenged this structure by requiring domestic processing before export. As a result, Indonesia has attracted substantial foreign investment in smelting, refining, and battery-related industries, particularly from countries with established industrial capabilities in mineral processing and electric vehicle manufacturing.

Foreign direct investment (FDI) has become a critical component of Indonesia's industrial upgrading strategy. International investors provide financial resources, technological expertise, and access to global production networks that accelerate industrial development. In the nickel industry, foreign investment has contributed to the rapid expansion of processing capacity and strengthened Indonesia's integration into emerging clean energy supply chains. This reflects the broader pattern observed in developing economies, where multinational corporations often function as key intermediaries connecting domestic industries with global markets (Gereffi, 2018).

Nevertheless, the reliance on foreign investment also raises important political economy questions regarding the distribution of value within global supply chains. While Indonesia has succeeded in attracting investment and expanding domestic processing activities, the extent of technological transfer and domestic capability development remains contested. In many cases, developing countries become integrated into global production networks primarily through resource-based manufacturing, while higher-value activities such as research, innovation, and advanced technology development remain concentrated in multinational corporations' home countries (Gereffi et al., 2005). This creates the possibility of a new form of dependency, where countries move from exporting raw materials to hosting foreign-controlled processing industries without achieving full industrial autonomy.

The Indonesian government's challenge, therefore, is to ensure that foreign investment contributes to long-term industrial learning rather than merely expanding production capacity. Industrial upgrading requires deliberate policies that encourage knowledge transfer, domestic supplier development, workforce skill enhancement, and technological innovation. Without these mechanisms, downstream industrialization may generate economic growth without fundamentally changing Indonesia's position within global production structures. As Rodrik (2014) emphasizes, industrial policy is most effective when it creates dynamic capabilities that allow domestic firms and institutions to progressively move into higher-value economic activities.

The political economy of Indonesia's integration into global supply chains is also shaped by geopolitical competition surrounding critical minerals. The global transition toward renewable energy technologies has increased international demand for nickel and other strategic resources, making Indonesia an important actor in global economic negotiations. By controlling access to critical mineral resources, Indonesia has gained greater bargaining power in negotiations with multinational corporations and major industrial economies. This strategy reflects a broader trend of resource-rich countries attempting to use their natural assets to strengthen their position within the international political economy.

However, Indonesia's strategic position also exposes the country to external pressures. Trade disputes related to mineral export restrictions demonstrate the tension between national industrial policies and international trade governance frameworks. While Indonesia views downstream policies as legitimate instruments of economic development and resource sovereignty, some international actors perceive export restrictions as barriers to free trade. These tensions illustrate the broader challenge faced by developing countries attempting to pursue industrial policies within a global economic system that often prioritizes market openness and unrestricted trade flows.

Furthermore, Indonesia's integration into global supply chains must be evaluated not only through economic indicators but also through questions of sustainability and resilience. The global energy transition has created demand for critical minerals, but supply chains are increasingly evaluated based on environmental standards, carbon intensity, and social governance practices. Therefore, Indonesia's ability to maintain its strategic position will depend on whether its industrial development aligns with emerging global sustainability requirements. Failure to address environmental and social concerns could undermine Indonesia's competitiveness in future green technology markets.

Overall, Indonesia's downstream industrialization has produced a significant transformation in its relationship with global supply chains. The country has successfully used resource governance policies to improve its bargaining position and attract industrial investment. However, moving from resource-based participation toward genuine industrial upgrading requires deeper institutional reforms and stronger domestic capabilities. Indonesia's future role in global production networks will depend not only on its control over strategic minerals but also on its ability to convert resource advantages into technological capacity, innovation, and sustainable industrial competitiveness.

The Indonesian experience demonstrates a central paradox of contemporary resource-based industrialization: access to strategic resources can provide developing countries with unprecedented opportunities for economic repositioning, but these opportunities must be supported by effective governance mechanisms to prevent the reproduction of unequal global production relations. Thus, downstream industrialization should be understood as an ongoing political economy process in which states continuously negotiate between resource sovereignty, foreign investment dependence, and the pursuit of industrial autonomy.

IV. POLITICAL ECONOMY CONSTRAINTS: INSTITUTIONAL CAPACITY, ENVIRONMENTAL GOVERNANCE, AND SUSTAINABLE INDUSTRIAL TRANSFORMATION

While Indonesia's downstream industrialization strategy has strengthened its position in global supply chains and increased domestic control over strategic resources, the long-term effectiveness of this transformation remains shaped by significant political economy constraints. Industrial upgrading based on natural resources involves complex trade-offs between economic growth, investment attraction, environmental sustainability, and social inclusion. These tensions demonstrate that resource-based industrialization is not merely an economic process but also a governance challenge involving competing interests among the state, corporations, local communities, and international actors.

One of the most significant challenges facing Indonesia's downstream industrialization is institutional capacity. The success of industrial policy depends not only on the formulation of strategic objectives but also on the ability of state institutions to coordinate implementation, enforce regulations, and manage conflicts among different stakeholders. Although Indonesia has demonstrated strong policy commitment in promoting downstream processing, institutional fragmentation remains a persistent challenge. Multiple government agencies are involved in regulating mining activities, industrial development, environmental management, investment policies, and trade relations, creating potential overlaps and coordination problems.

From a developmental state perspective, effective industrial transformation requires a capable bureaucracy that can coordinate economic actors while maintaining policy consistency over time (Wade, 2018). In Indonesia's case, the state has been successful in mobilizing investment and accelerating industrial infrastructure development, particularly in mineral-processing sectors. However, questions remain regarding whether institutional arrangements are sufficiently capable of ensuring technological advancement, domestic industrial linkages, and equitable distribution of economic benefits. Without strong coordination mechanisms, downstream industrialization risks becoming primarily an investment facilitation strategy rather than a comprehensive industrial development agenda.

A related challenge concerns the structure of ownership and value distribution within downstream industries. Although domestic processing capacity has expanded significantly, many downstream facilities remain dominated by foreign investment, particularly from countries with established capabilities in mineral processing and battery manufacturing. This situation creates a dilemma for Indonesia: foreign capital is essential for accelerating industrial development, but excessive dependence on external actors may limit domestic technological learning and industrial autonomy. As global value chain scholars argue, participation in international production networks does not automatically lead to upgrading; countries must actively develop capabilities that allow them to capture higher-value activities (Gereffi et al., 2005).

Environmental governance represents another major challenge confronting Indonesia's downstream industrialization agenda. The expansion of nickel-processing industries has been closely associated with concerns regarding carbon emissions, deforestation, biodiversity loss, and industrial waste management. This issue creates a fundamental contradiction within Indonesia's development strategy: the country is positioning itself as a critical supplier for global renewable energy technologies while simultaneously facing environmental pressures from the extraction and processing of the minerals required for that transition.

This contradiction reflects a broader challenge within global green industrialization. The transition toward renewable energy technologies requires substantial quantities of critical minerals; however, the extraction and processing of these minerals can generate significant environmental and social impacts. Therefore, the sustainability of mineral-based industrialization depends not only on economic efficiency but also on the quality of environmental governance and regulatory enforcement (Rodrik, 2014). For Indonesia, maintaining competitiveness in global green technology supply chains increasingly requires compliance with international sustainability standards, including carbon reduction commitments and responsible production practices.

The environmental challenges associated with downstream industrialization also reveal tensions between national development priorities and global governance expectations. From the Indonesian government's perspective, downstream policies represent an exercise of economic sovereignty and a strategy to maximize domestic benefits from natural resources. However, international markets increasingly impose environmental and social requirements on supply chains, creating pressure for producing countries to improve governance standards. The ability of Indonesia to reconcile these competing demands will influence its future position within global industrial networks.

Beyond environmental concerns, labor and social governance issues constitute another important dimension of downstream industrialization. Industrial expansion has created employment opportunities and stimulated regional economic activity, particularly in mineral-producing areas. However, questions remain regarding the quality of employment, workforce skills development, labor protection, and the participation of local communities in industrial decision-making. Resource-based industrialization can generate uneven development when economic benefits are concentrated among investors and industrial actors while social and environmental costs are absorbed by surrounding communities.

This challenge highlights the importance of inclusive industrial policy. Industrial transformation should not be measured solely through investment volume, export performance, or production capacity but also through its ability to generate broad-based development outcomes. Human capital development, local supplier integration, and community participation are essential components for ensuring that downstream industrialization contributes to structural transformation rather than simply expanding extractive activities in a new form.

Furthermore, Indonesia's downstream strategy operates within an increasingly complex international economic environment. Global trade regulations, geopolitical competition, and changing investment patterns influence the sustainability of resource-based industrial policies. International disputes over mineral export restrictions illustrate the tension between developing countries' aspirations for industrial sovereignty and existing global trade frameworks that emphasize market liberalization. For Indonesia, maintaining policy autonomy requires balancing domestic development objectives with international economic commitments.

These challenges suggest that the future success of Indonesia's downstream industrialization depends on the state's ability to move from a regulatory and investment-driven approach toward a more comprehensive governance framework. The next phase of industrial transformation requires strengthening institutional coordination, improving environmental standards, promoting domestic technological capabilities, and ensuring greater social inclusion. Without these reforms, downstream industrialization may achieve short-term economic gains while failing to deliver sustainable structural transformation.

Therefore, Indonesia's experience demonstrates that resource governance is central to the success of industrial policy. Natural resource wealth provides strategic advantages, but these advantages can only be transformed into long-term development outcomes through effective institutions and accountable governance. The political economy challenge facing Indonesia is not simply how to process more minerals domestically, but how to construct an industrial system that combines economic competitiveness, technological advancement, environmental responsibility, and social legitimacy.

In this sense, downstream industrialization represents both an opportunity and a test of Indonesia's developmental capacity. The policy has successfully challenged traditional patterns of commodity dependency and strengthened Indonesia's position in global supply chains. However, achieving sustainable industrial transformation requires addressing the institutional and governance constraints that determine whether resource-based growth can evolve into inclusive and resilient economic development.

V. CONCLUSION

Indonesia's downstream industrialization represents a significant attempt to transform a resource-dependent economy into a more integrated and competitive industrial economy. This article has demonstrated that downstream industrialization should be understood not merely as a trade policy or investment strategy, but as a broader political economy project aimed at restructuring Indonesia's position within global production networks. Through the implementation of mineral downstreaming policies, particularly in the nickel sector, Indonesia has sought to increase domestic value creation, strengthen resource sovereignty, and enhance its bargaining position within global supply chains.

The analysis shows that the Indonesian state has played a central role in driving industrial transformation through regulatory intervention, resource governance reforms, and strategic engagement with foreign investment. Consistent with the developmental state perspective, Indonesia's experience demonstrates that state capacity remains crucial in shaping industrial upgrading trajectories. By restricting raw mineral exports and encouraging domestic processing, the government has successfully altered the traditional relationship between resource exporters and global industries, enabling Indonesia to become an increasingly important actor in critical mineral supply chains.

However, this study also highlights that integration into global value chains does not automatically guarantee sustainable industrial upgrading. While downstream industrialization has expanded domestic processing capacity and attracted significant foreign investment, challenges remain regarding technological dependency, limited domestic innovation capacity, and uneven value distribution. Indonesia's position within global supply chains continues to be influenced by structural asymmetries between resource-rich developing countries and technologically advanced economies. Therefore, the next phase of industrial development requires policies that move beyond resource processing toward technological learning, domestic capability building, and innovation-driven industrial competitiveness.

Furthermore, the sustainability of Indonesia's downstream industrialization depends on addressing significant governance challenges. Institutional fragmentation, environmental pressures, labor concerns, and international regulatory expectations represent critical constraints that may influence the long-term legitimacy and effectiveness of the policy. The experience of Indonesia demonstrates that resource-based industrialization requires more than control over natural resources; it requires governance institutions capable of balancing economic objectives with environmental responsibility and social inclusion.

Theoretically, this study contributes to debates on developmental states, resource nationalism, and global political economy by demonstrating how resource-rich developing countries attempt to renegotiate their position within global capitalism. Indonesia's case illustrates that resource nationalism in the twenty-first century is increasingly oriented toward value capture and industrial upgrading rather than simply state ownership of resources. However, successful transformation depends on whether states can convert resource advantages into sustainable productive capabilities.

From a policy perspective, Indonesia's experience provides important lessons for other resource-rich developing economies seeking to escape commodity dependency. Effective downstream industrialization requires coherent industrial policies, strong institutional coordination, investment in human capital, technological development, and robust environmental governance. Without these supporting conditions, downstream policies risk creating new forms of dependency based on foreign-controlled processing rather than genuine industrial autonomy.

Ultimately, Indonesia's downstream industrialization represents both an opportunity and a challenge. It has created new possibilities for economic transformation by positioning Indonesia as a strategic player in emerging global industries, particularly those associated with the energy transition. Yet, the long-term success of this strategy will depend on the country's ability to transform resource advantages into broader developmental outcomes. The Indonesian experience demonstrates that sustainable industrial transformation requires not only access to strategic resources but also the institutional capacity to govern them effectively within an increasingly competitive and interconnected global economy.

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